

is different in each state. For example, the following table lists three groups of states:

Imaging Mode States	Operation Mode States	Other Operation States
B mode	freeze	system menu
M Mode	measurements mode	protocol selection
dual mode	annotations mode	3-D application
color Doppler mode	pictograms mode	reporting
power Doppler mode	arrow mode	patient ID
pulsed wave mode		patient review
continuous wave mode		
3-D/4-D mode		

A system may permit one state from each column to be active at the same time. The selection of a mode can drive the selection of a layout of controls displayed on a touch screen.

In the foregoing description specific details are set forth in order to provide a more thorough understanding to persons skilled in the art. However, well known elements may not have been shown or described in detail to avoid unnecessarily obscuring the disclosure. Accordingly, the description and drawings are to be regarded in an illustrative, rather than a restrictive, sense.

Certain implementations of the invention comprise computer processors which execute software instructions which cause the processors to perform a method of the invention. For example, one or more processors in an ultrasound machine may implement methods for executing protocols or defining protocols as described herein by executing software instructions in a program memory accessible to the processor(s). One or more processors in apparatus for defining protocols may perform protocol definition methods as described herein by executing software instructions in a program memory accessible to the processor(s).

Certain aspects of the invention may also be embodied in the form of a program product. The program product may comprise any tangible medium which carries a set of computer-readable signals comprising instructions which, when executed by a data processor, cause the data processor to execute a method of the invention. Program products according to the invention may be in any of a wide variety of forms. The program product may comprise, for example, physical media such as magnetic data storage media including floppy diskettes, hard disk drives, optical data storage media including CD ROMs, DVDs, electronic data storage media including ROMs, flash RAM, or the like. The computer-readable signals on the program product may optionally be compressed or encrypted.

Where a component (e.g. a software component, processor, assembly, device, circuit, etc.) is referred to above, unless otherwise indicated, reference to that component (including a reference to a "means") should be interpreted as including as equivalents of that component any component which performs the function of the described component (i.e. that is functionally equivalent), including components which are not structurally equivalent to the disclosed structure which performs the function in the illustrated exemplary embodiments of the invention.

As will be apparent to those skilled in the art in the light of the foregoing disclosure, many alterations and modifications are possible in the practice of this invention without departing from the spirit or scope thereof. For example, additional embodiments may be generated by making modifications, permutations, additions and sub-combinations of the features of the example embodiments described above.

What is claimed is:

1. A method for operating an ultrasound machine, the method comprising:

performing a training mode ultrasound examination with the ultrasound machine in a training mode in which all available controls are displayed;

recording, during the training mode ultrasound examination and by the ultrasound machine, which controls are used at each stage of the training mode ultrasound examination:

creating, after completion of the training mode ultrasound examination, a custom protocol in which only those controls used for each stage of the training mode ultrasound examination are displayed;

providing a plurality of protocols for the ultrasound machine, the plurality of protocols including the custom protocol, and each protocol of the plurality of protocols specifying a series of one or more ultrasound images to be acquired and step-by-step instructions for acquiring the one or more ultrasound images, wherein each protocol includes patient imaging configuration choices that are not user-selectable at the time the protocol is executed to image a patient, features that a user controls during execution of the protocol, and limits on an extent which the user controls various features;

receiving subject information specifying one or more characteristics of a current subject of an ultrasound examination;

determining a subset of the plurality of protocols based on the subject information, the subset including two or more of the plurality of protocols and including only protocols applicable to subjects having the one or more characteristics of the current subject of the ultrasound examination, wherein the two or more of the plurality of protocols include is the custom protocol;

displaying the subset of the plurality of protocols to a user of the ultrasound machine;

receiving a user-selected one of the displayed protocols, wherein the user-selected one of the protocols is the custom protocol; and

executing the user-selected protocol, which activates the ultrasound machine to acquire an image and which visually displays a prompt via a display screen that provides the step-by-step instructions associated with the selected protocol to guide the user to acquire the one or more ultrasound images specified by the selected protocol, wherein the prompt includes information regarding a particular transducer to apply and how to make a particular measurement, and a graphical representation graphically showing how to apply the particular transducer to acquire an image.

2. A method according to claim 1 wherein the user selected protocol specifies a plurality of images to be acquired and comprises:

a setup for each image to be acquired, each setup comprising configurations for the ultrasound machine; and one or more activities to be performed between acquiring images in the series of ultrasound images wherein, executing the user-selected protocol comprises operating the ultrasound machine to prompt the user to perform the one or more activities between acquiring the images.

3. A method according to claim 2 wherein the ultrasound machine has a touch screen display and the user-selected protocol comprises, for each image to be acquired and each activity to be performed between acquiring images, a layout of controls to be displayed on the touch screen display and the